

Abstract

The invention pertains to methods and devices for the long term, *in vitro* culture of hematopoietic progenitor cells in the absence of exogenously added hematopoietic growth factors, improved methods for the introduction of foreign genetic material into cells of hematopoietic origin, and to apparatus for performing these methods. The hematopoietic progenitor cells are cultured on a three-dimensional porous biomaterial. The three-dimensional porous biomaterial enhances hematopoietic progenitor cell survival and leads to an expansion of progenitor cell numbers and/or functionality, while maintaining progenitor cell pluripotency in the absence of exogenous growth factors. In addition, the three-dimensional porous biomaterial supports high level transduction on cells cultured upon such environment.